REMARKS

Claim 13 is amended, and claims 22-24 are cancelled. Claims 13-21 are now pending and presented for review. Favorable reconsideration and allowance are requested in light of the foregoing amendments and the remarks which follow.

1. Drawing Objections

In paragraph 1 of the Office Action dated December 5, 2005, the Examiner objects to the drawings for failing to adequately relate or show every feature of the invention specified in claims 22 and 23. To address these objections, Applicant has cancelled claims 22 and 23. Accordingly, withdrawal of these objections is therefore requested.

2. Rejections Under 35 U.S.C. 112, first paragraph

The Examiner rejected claims 13-21 under 35 U.S.C. 112, first paragraph, because the specification allegedly does not provide reasonable enablement for the recited algorithms to show one skilled in the art how the recited evaluation circuit uses the operating parameter (e.g., motion of vibration unit, the oscillatory amplitude of the vibration unit, oscillatory frequency) to determine a "densified state" of the material.

Applicant has deleted the recited limitation "an RPM of the electric motor, an electric excitation frequency of the electric motor, and a winding temperature of a stator of the electric motor" from claim 13.

Applicant has indicated a best mode to practice the claimed invention, based on the foregoing summary of the specification. The Examiner indicates that use of accelerometers is

well-known in the art of vibration and speed measurement (See page 7 of Office action dated December 5, 2005). Furthermore, the Examiner also should refer to the specification, which discloses acceleration detectors 6 serving as motion measurement devices (see page 5, lines 15-19 of specification). The specification also states that the evaluation circuit 10 receives and evaluates the signals provided by the acceleration detectors 6 (page 5, line 26 – page 6, line 1 of specification). The specification also discloses a memory is provided to store characteristic fields or algorithms, and that the evaluation characteristics or algorithms can be established by an expert by preliminary tests and relate or map corresponding parameters to the densification results (page 6, lines 3-7 of specification). In view of the above-described disclosure, the Applicant believes that a best mode of practicing the claimed invention is provided in the specification.

Applicant also believes that undue experimentation is not required to practice the claimed invention. As noted above, the Examiner has already indicated that accelerometers are known in the art of vibration and speed measurement (See page 7 - Office Action dated December 5, 2005). The attached Supplemental 37 CFR §1.132 declaration of Dr. Georg Sick (herein "the Supplemental Declaration") demonstrates that the specification, coupled with the knowledge of one skilled in the art, would have guided one skilled in the art to determine an algorithm or map that uses the recited operating parameters to determine the "densification state" without undue experimentation. First, the specification cites evidence in the form of a British patent that it is known that a poker vibrator operational characteristic, namely engine RPM, varies with

densification in an identifiable manner. Specifically, the specification refers to the GB 1097651 patent, which discloses how to use the electrical power consumption of the vibrator motor to determine a trend in a "densified state" of the material. The disclosure of such a concept in a widely available publication such as a prior patent constitutes strong evidence that the concept to determine a trend in a densified state of a material is known to those skilled in the art.

The Supplemental Declaration also proves how only routine tasks are required to prepare a map or algorithm relating the measured motion parameter to the trend in the densified state of the material. To determine a change in a densified state of the concrete, one skilled in the art need only conduct preliminary tests that requires a visible impression to determine when the occurrence of air bubbles at the surface of the concrete has stopped as an indication of achievement of the final density of the concrete. The density of the concrete can be measured by measurement of the drop of the concrete surface in a defined volume during vibration. The settlement of the surface is associated with the displace air bubbles rising to the surface. This task would be merely routine to one skilled in the art. Alternatively, preliminary tests need only be performed to measure the density of sections of the concrete after curing using routine density measurement methods in a laboratory.

Signals from the recited sensors could then be correlated with the above described densification data to develop the maps and/or algorithms. The publication attached with the Supplemental Declaration illustrates the routine skill known at the time of filing needed to correlate and map sensor signals to derive a measure of the frequency and amplitude of an

internal vibrator over time (See "Fast-Fourier Transformation with a Time Signal", Technische Universitat Dresden, (March 20, 2000), p. 26. Once such a map is created and stored in the disclosed on-board memory, it is a small matter to produce a signal based on a measured change in the operating parameter that corresponds to a change in a densified state of the material.

The Examiner has not provided any support to refute the Applicant's statements in the Declaration dated August 8, 2005. An analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contains sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention (MPEP 2164.01). The standard for determining whether the specification meets the enablement requirement is whether one reasonably skilled in the art can make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. See *United States vs. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ.2d 1217, 1223 (Fed. Cir. 1988). The determination that undue experimentation would have been needed to make and use the claimed invention requires weighing the breadth of the claims, the nature of the invention, the state of the prior art, the level of the one of ordinary skill, the level of predictability in the art, the amount of direction provided by the inventor, the existence of working examples, and the quantity of experimentation needed to make or use the invention based on the contents of the disclosure (MPEP 2164.01a). In order to make a rejection for lack of enablement, the examiner has the initial burden to establish a reasonable basis to question the enablement provided by the claimed

invention (MPEP 2164.04). Applicant argues that the Examiner has not satisfied the Examiner's initial burden to provide a reasonable basis to question the enablement provided by the claimed invention and that, even if he has, Applicant has proffered more than ample evidence to overcome this rejection.

In view of the Supplemental Declaration and the above arguments, Applicant requests reconsideration and withdrawal of the rejections under 35 USC §112.

4. Rejections Under 35 U.S.C. 102(b) and 102(e)

Claims 13-14, 21 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by GB 1097651 (herein the GB '651). Claims 13-17, 21 also stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 5,992,238 to Heimbruch et al. (herein the Heimbruch et al. patent). Claims 18-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the Heimbruch et al. patent. Applicant traverses the rejections in view of the prior art for the following reasons.

Claim 13 as amended recites a poker vibrator to densify a flowing material that includes a vibration unit, a switching unit separated from the vibration unit through an elastic connection, a measurement device to detect at least one operating parameter of the poker vibrator, and an evaluation circuit to evaluate measured values detected by the measurement device. The operating parameter is a parameter from the group consisting of the motion of the vibration unit, the oscillatory amplitude of the vibration unit, and its oscillatory frequency. A signal is produced

by the evaluation circuit based on a measured change in the operating parameter that corresponds to a change in a densified state of the material.

None of the cited references provide any teaching or suggestion of determining a change in the compaction or densification of the material based on one of a motion of the vibration unit, an oscillatory amplitude of the vibration unit, an oscillatory frequency of the vibration unit, and a signal produced by an evaluation circuit based on a measured change in the operating parameter that corresponds to a change in a densified state of the material as recited in claim 13. Rather, the cited GB '651 appears to disclose some kind of comparator circuit configured to produce a signal based on a measured power consumption of a motor relative to a threshold value that corresponds to a degree of achieved compaction (see page 1, line 84 – page 2, line 16). The GB '651 patent does not teach or suggestion measurement of a motion-type parameter, and so certainly does not teach or suggest a signal produced based on a change in a motion-type parameter that corresponds to a change in a densified state of the material as recited in claim 13.

The Examiner alleges that that the use of accelerometers having multiple axes of measurement is well known in the art of vibratory machines. However, the Examiner provides no support of a teaching or suggestion to produce a signal with an evaluation circuit using the measured change in a motion type parameter that corresponds to a change in a densified state of the material as recited in claim 13.

The Heimbruch et al. patent does not correct the deficiencies of the above cited reference. The Heimbruch et al. patent merely discloses recording the vibration speeds to determine

optimal speeds at various conditions to achieve "a maximum structural strength" of the concrete or impending failure of the vibrator (col. 1, lines 28-52). There is no teaching or suggestion of an evaluation circuit configured to produce a signal based on "a change" in a measured motion type parameter that corresponds to "a change in a densified state" of the material as recited in claim 13. The disclosed "ultimate structural strength" of material taught in the Heimbruch et al. patent is clearly distinguishable from a change in the densified state of material as recited in claim 13. We welcome any additional thoughts you may have in this regard.

Thus, the cited references do not teach and every limitation of the claimed invention. Reconsideration and withdrawal of the rejections is respectfully requested.

Claims 14-21 depend either directly or indirectly from claim 13 and are believed allowable for the same reasons that claim 13 is believed allowable. Claims 14-21 also include patentable subject matter in addition to that recited in claim 13. As noted above, the GB' 651 patent does not disclose an acceleration detector as recited in claims 17 and 19-21.

CONCLUSION

It is submitted that claims 13-21 are in condition for allowance and each defines patentable subject matter. A Notice of Allowance is therefore respectfully requested.

A fee of $ 1,810 is believed due with this communication for a request for continued examination and a request for a three-month extension of time. Should the Examiner consider any fees to be payable in conjunction with this or any future communication, the Director is authorized to direct payment of such fees, or credit any overpayment to Deposit Account No. 50-1170.

The Examiner is invited to contact the undersigned by telephone if it would help expedite matters.

Respectfully submitted,

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